

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SMC 60575/WO	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/GB2004/001196	International filing date (day/month/year) 19/03/2004	(Earliest) Priority Date (day/month/year) 24/03/2003
Applicant  AVECIA LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 04 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



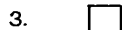
The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).



With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.



**Certain claims were found unsearchable** (See Box II).



**Unity of invention is lacking** (see Box III).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.



none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2004/001196

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07H21/00 C07H19/16 C07H19/06 C07H19/10 C07H19/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE CHEMABS 'Online!  CHEMICAL ABSTRACTS SERVICE, COLUMBUS,  OHIO, US;  DE VROOM, E. ET AL: "Preparation of  internucleotide phosphate analogs via the  corresponding hydrogen-phosphonate  diester"  XP002290353  retrieved from STN  Database accession no. 110:173673  abstract  &amp; RECUEIL DES TRAVAUX CHIMIQUES DES  PAYS-BAS , 107(10), 592-4 CODEN: RTCPA3;  ISSN: 0165-0513, 1988,</p> <p style="text-align: center;">-----  -/--</p>	1-3, 10, 18-23



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## ° Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

29 July 2004

Date of mailing of the international search report

13/08/2004

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB2004/001196

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>EVANS, DAVID A. ET AL: "New silicon-phosphorus reagents in organic synthesis. Carbonyl and conjugate addition reactions of silicon phosphite esters and related systems" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY , 100(11), 3467-77 CODEN: JACSAT; ISSN: 0002-7863, 1978, XP002290351 page 3468; compounds 15, 17</p>	16,17
A	<p>SEELA F ET AL: "DIASTEREOMERICALLY PURE R-P AND S-P DINUCLEOSIDE H PHOSPHONATES THE STEREOCHEMICAL COURSE OF THEIR CONVERSION INTO P METHYLPHOSPHONATES PHOSPHOROTHIOATES AND OXYGEN-18-LABELLED CHIRAL PHOSPHATES" JOURNAL OF ORGANIC CHEMISTRY, vol. 56, no. 12, 1991, pages 3861-3869, XP002290352 ISSN: 0022-3263 cited in the application Scheme III page 3865</p>	4-15
A	<p>BRILL W K-D: "Thioalkylation of Nucleoside-H-phosphonates and its Application to Solid Phase Synthesis of Oligonucleotides" TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 36, no. 5, 30 January 1995 (1995-01-30), pages 703-706, XP004028873 ISSN: 0040-4039 cited in the application page 704; figure 1</p>	4-15
A	<p>WO 98/11120 A (UNIV DUKE) 19 March 1998 (1998-03-19) claim 3; figure 12</p>	4-15
A	<p>WO 95/32980 A (ISIS PHARMACEUTICALS INC ; RAVIKUMAR VASULINGA (US); COLE DOUGLAS L (U) 7 December 1995 (1995-12-07) claims</p>	4-15

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/001196

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9811120	A	19-03-1998	US 5859231 A	12-01-1999
			AU 4326797 A	02-04-1998
			WO 9811120 A1	19-03-1998
			US 6376178 B1	23-04-2002
			US 2003064483 A1	03-04-2003
WO 9532980	A	07-12-1995	US 5571902 A	05-11-1996
			AU 2657095 A	21-12-1995
			EP 0766688 A1	09-04-1997
			WO 9532980 A1	07-12-1995
			US 2003069412 A1	10-04-2003
			US 6211350 B1	03-04-2001
			US 2004063925 A1	01-04-2004
			US 6001982 A	14-12-1999
			US 6294664 B1	25-09-2001
			US 2001018510 A1	30-08-2001